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AN ACID-FAST ORGANISM RESEMBLING THE BACILLUS OF HUMAN LEPROSY CULTIVATED FROM THE TISSUES OF A LEPROUS RAT.

By C. W. Chapin, Assistant Surgeon, Public Health and Marine-Hospital Service.

The writer has succeeded in isolating an acid-fast bacillus corresponding in general to the published characteristics of the bacillus of human leprosy from a contaminated culture from the tissues of a leprous rat.

The medium employed had the following composition:

	Per cent.
Egg yolk	1.0
Normal soda solution	.1
Glycerin	.5
Agar	2.0
Salt	.3

The ingredients, with the exception of the egg yolk, were dissolved and sterilized; the yolk was then incorporated, the medium was tubed and slanted, and after hardening was heated to 70° C. for one hour in the Arnold sterilizer for sterilization.

The culture was kept most of the time in the incubator at 37° C. for part of the time at room temperature, and transplanted about once a week. Upon making the original culture and at each transplantation the surface was moistened daily for two or three days with a 1 per cent solution of trypsin, previously sterilized by passing through a Berkefeld filter.

Under these conditions the acid-fast bacilli originally present in the tissue were replaced by morphological variants, sometimes long-curved forms, oftener short, oval, almost coccoid organisms. The acid-fast organism was isolated by plating upon the medium described above.

The growth is macroscopically dull, gray, brownish, or yellowish, depending upon the medium and length of incubation. It overgrows the surface of the condensation water and does not readily emulsify well. It grows fairly upon various modifications of the above medium without trypsin, better with it; less well upon peptone media. Upon bouillon it grows slowly as a scum overspreading the surface from which flocculent fragments separate and settle upon agitation.

Microscopically the organism is very polymorphous, depending upon the conditions of cultivation; some forms resembling the *Bacillus lepræ* as found in the tissues, some long and curved, some short or coccoid.

In the contaminated cultures of several other strains acid-fast morphological variants, presumably indicative of beginning reproductive activity, have appeared, and attempts are being made to isolate them in pure culture; also to obtain a strain uncontaminated at any time. Until this last has been accomplished, the observation must remain open to obvious criticism.

The acid-fast morphological variants have never been observed in a long series of attempts to grow the bacillus of rat leprosy in symbiosis with other bacteria without trypsin. Controls for sterility of the trypsin have usually remained sterile, and in no case have acid-fast organisms been found therein.